LEVEE SYSTEM INTEGRITY

The goal of the Levee System Integrity Program is working to protect water supplies needed for ecosystems, cities and farms. Levee improvements reduce the threat of levee failure and seawater intrusion, and also protect major interstates, roadways, gas and water lines, power lines, railways, cities, towns, agricultural lands and habitat.

Summary of Accomplishments

- Federal, state and local agencies have preserved and protected more than 650 miles of levees per year, boosting water supply reliability and water quality by reducing the threat of levee failure due to earthquakes or floods.
- $68 million of state funding has been invested over four years in the Levee System Improvements Program. The funding supported program implementation, levee system improvements, habitat development, beneficial reuse of dredged materials, emergency response, and studies. The actions benefit not only Delta water users and habitats, but also cities and farms elsewhere in the Bay Area, San Joaquin Valley and Southern California.

CALFED Plan

Record of Decision (ROD)

The CALFED Plan includes the following Levee System Integrity goals:

- Provide funding for local reclamation districts to reconstruct Delta levees to a base level of protection (PL 84-99).
- Maintain and strengthen Delta levees, provide protection and enhancement of habitats and drinking water quality.
- Develop best management practices for beneficial reuse of dredged material.
- Refine Delta Emergency Management Plan and develop a Delta Risk Assessment.
- Develop a management strategy to identify risks to Delta levees, evaluate consequences and recommend actions.

Levee System Integrity Accomplishments by Region

Delta Region

- Provided funding to improve more than 43 miles of Delta levees up to the PL 84-99 limit, including projects on Sherman, Bradford and Jersey Islands and Webb Tract.
- Successfully reused approximately 900,000 cubic yards of dredged material to increase levee stability while enhancing habitat.
- Significant progress made on levee subsidence studies with a demonstration project launched on Twitchell Island and a strategic framework developed for addressing subsidence.
- Emergency response capabilities improved through draft Multi-Agency Emergency Response Plan, improved coordination and acquisition of flood fight materials.
- Studies initiated to analyze seismic risk to Delta levees.

Bay Region

- Suisun Marsh Levee Investigation completed and efforts launched to develop a long-term plan for levee protection consistent with regulatory requirements and endangered species protection.

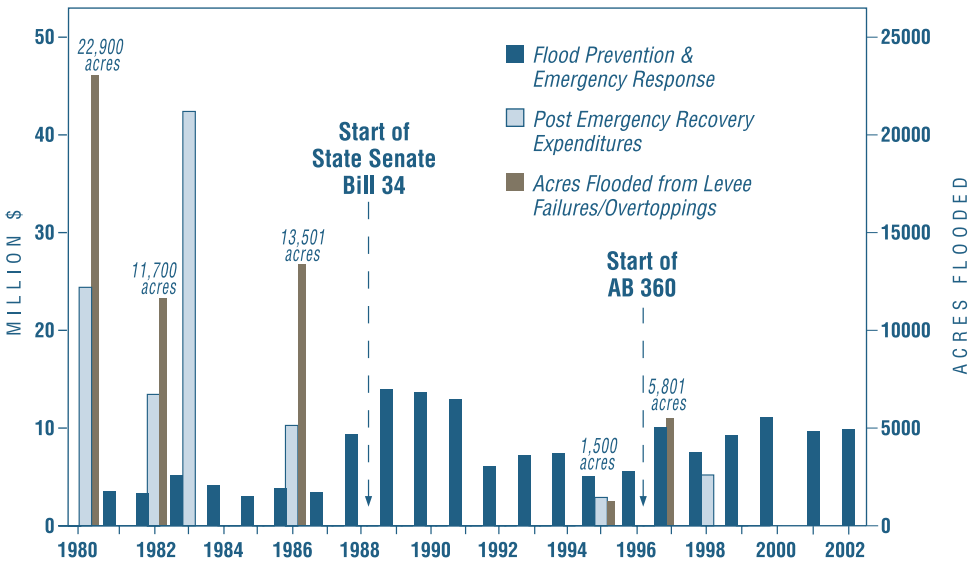
Cross-regional Benefits

Though the Levee System Integrity Program is focused on the Delta region, investments there benefit other regions and the state as a whole. Examples include:

- Protecting water quality for millions of Californians who rely on the Delta for all or part of their water supplies.
- Stabilizing levees while enhancing habitat helps restore the Bay-Delta ecosystem, that in turn improves conditions for key species and increases water supply reliability for cities and farms in the Bay Area, San Joaquin Valley and Southern California.
- Reducing the risk of levee failures improves water supply reliability for water users in all regions.

Delta Levee Flood Prevention Costs

Post Disaster Assistance Costs and Acres Flooded



This indicator measures the number of acres in the Delta flooded each year. Flooding can cause significant damage, especially to agriculture, but to other land uses as well. Levees are also important for the control of salinity at key points in the Delta, and flooding at certain locations can thus threaten fresh water supplies crucial to a wide range of agricultural, urban, and ecosystem uses.

NOTE: Although final numbers are not yet available for 2003 and 2004, 12,000 acres of farm land on Jones Tract was flooded in June 2004.

LEVEE SYSTEM INTEGRITY

PROJECT HIGHLIGHT

Jones Tract

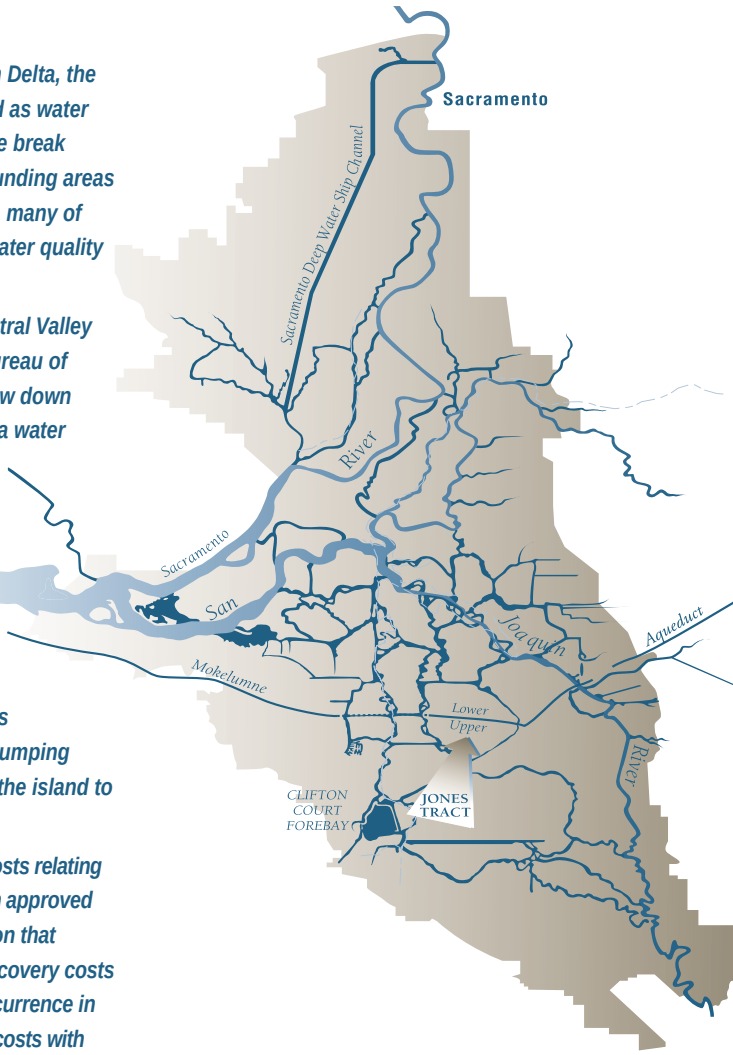
June 3, 2004, during mild spring weather in the Sacramento-San Joaquin Delta, the unexpected happened – a levee on Jones Tract failed. The island flooded as water from Middle River gushed in filling all 12,000 acres of farmland. The levee break triggered a series of actions to protect water quality, property and surrounding areas while at the same time highlighting the tenuous situation that exists with many of the Delta's levees that help protect a way of life in the Delta along with water quality for many other Californians who depend on Delta water exports.

To protect water supplies for the State Water Project and the federal Central Valley Project, the state Department of Water Resources (DWR) and the U.S. Bureau of Reclamation (Reclamation) immediately began coordinated efforts to slow down pumping at the South Delta export facilities to reduce the intrusion of sea water and closely monitor water quality conditions. Reclamation increased releases of fresh water from Shasta Dam to control salinity and the Delta Cross-Channel Gates were opened to move fresher Sacramento River water into the Delta.

A series of emergency response actions led to the completion of the levee repair 27 days after the 300 foot-wide break. A short time later, pumping began to remove the water from the island. Because Jones Tract is below sea level, as many Delta islands are, it would take more than six months to remove the water. When the pumping operations started in mid July, about 140,000 acre-feet of water covered the island to an average depth of 12 feet.

While the cause of the levee failure will likely remain unknown, the overall costs relating to the disaster are currently placed at $90 million. President George W. Bush approved Governor Arnold Schwarzenegger's request for a major disaster declaration that provides federal financial assistance to cover emergency response and recovery costs for public entities, as well as hazard mitigation efforts to help prevent a recurrence in the area. The federal government will cover 75 percent of the total eligible costs with the state and local entities covering the remaining 25 percent.

This year, the unanticipated flooding of Jones Tract in the Delta has focused the issues surrounding the importance and stability of Delta levees. Preliminary research and analysis indicates that the Delta is becoming increasingly unstable as a result of sea level rise, continued land subsidence and the potential for earthquakes. With the passage of federal authorization in October 2004, it is even more important to receive federal appropriations as quickly as possible for the Levee Program. DWR has launched a multi-year risk assessment study to evaluate the potential risk of Delta levee failure. In addition, in response to this year's events, DWR has begun a comprehensive reassessment of the Delta levee program that may lead to future changes in strategy and approach for maintenance and improvement of Delta levees.



LEVEE SYSTEM INTEGRITY

◆ Completed Milestone ▲ Remaining Milestone ●—● Present Schedule ◆—◆ Sub-Tasks ═══ Date Reporting Period Ends

Program Element Summary Tasks	2000	2001	2002	2003	2004	2005	2006	2007	2008
Program Management	8/00 ●—● 12/07								
Subventions (Delta)	8/00 ●—● 12/07								
Process Applications, Present to CALFED Management, Reclamation Board Approval, and Claims Due (each year)	◆◆◆◆ ◆◆◆◆ ◆◆◆◆ ◆◆◆◆ ▲▲▲▲ (milestones repeat each year)								
a. Maintain Levees	8/00 ◆—◆ 12/07								
Miles maintained per year	683 miles ◆ 662 miles ◆ 719 miles ◆ 740 miles ▲ (milestones and miles repeat each year)								
b. Levee Enlargement	8/00 ◆—◆ 12/07								
Miles maintained per year	21 miles ◆ 11 miles ◆ 15 miles ◆ 6 miles ▲ (milestones and miles repeat each year)								
Special Projects (Delta)	8/00 ●—● 12/07								
a. Develop BMP's for Dredged Material	8/00 ◆—◆ 12/07								
	Institute Program for Use of Dredged Material ▲ 12/07								
b. Levee Enlargement and Stability Improvements	8/00 ◆—◆ 12/07								
Miles enlarged and improved per year	9 miles ◆ 8 miles ◆ 4.3 miles ◆ 6 miles ▲ (milestones and miles repeat each year)								
c. Habitat Enhancement	8/00 ◆—◆ 12/07								
Acres and linear feet	21 acres/2000 lf ◆ 0 acres/3000 lf ◆ 0 acres ◆ 14 acres/0lf ▲ (milestones, acres and linear feet repeat each year)								
Levee Science Projects	8/00 ●—● 12/07								
	▲ 6/04 - Begin Studies to Extend the Work Window								
	▲ 6/05 - Begin Studies on the Effect of Saline Dredge Material on Beneficial Reuse Habitat Restoration Sites								
	▲ 6/06 - Begin Water Quality Studies for Dredging								
a. Subsidence Research and Demonstration Projects	8/00 ◆—◆ 12/07								
	◆ 6/01 - Begin USGS Subsidence Study								
	◆ 6/02 - Begin Subsidence Reversal Demonstration								
	▲ 6/06 - Begin Implementation of Subsidence Reversal Techniques								
Emergency Response including Training & Development, Develop Mutual Support, Support Local Flood Fight Efforts, and Enhance Flood Fight Inventory	8/00 ●—● 12/07								
(occurring as needed on an annual basis)	◆ 12/00 - Initiate Actions to Refine Delta Emergency Management Plan								
	◆ 6/04 - Purchase Flood Fight Boxes								
	▲ 6/05 - Delta- wide Asset Management Plan								
	▲ 6/04 - Improve Flood Fight Supply Inventory								
Risk Assessment	9/01 ●—● 8/06								
	◆ 9/01 - Develop Contract Specifications								
	◆ 12/01 - Develop Delta Risk Management Strategy								
	◆ 8/03 - Award Risk Assessment Contract								
	▲ 8/04 - Evaluate Contract Findings								
	▲ 8/05 - Implement Changes to Reduce Risk								
Comprehensive Program Evaluation	2/05 ●—● 6/07								
Beneficial Reuse of Dredged Material	8/00 ●—● 12/07								
Cubic yards (cy) reused	198,200 cy ◆ 288,500 cy ◆ 22,000 cy ◆ 375,000 cy ▲ (milestones and volume of material repeat each year)								
Suisun Marsh	8/00 ●—● 12/07								
a. Levees Program Suisun Marsh	8/00 ◆—◆ 12/07								
	◆ 6/01 - Coordinate with Local Interests								
	◆ 6/02 - Levee Projects on Van Sickle and Honker Island								
	▲ 6/04 - Habitat Levee and Microtidal Demonstration Project								
	▲ 6/04 - Maintenance Dredging Demonstration Project								
	▲ 6/05 - Implement Subventions & Special Projects								
	▲ 6/06 - Levee Projects								